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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,439	09/15/2003	Scott D. Haigh	P0883D	1567
23735 7590 12/26/2006 DIGIMARC CORPORATION 9405 SW GEMINI DRIVE BEAVERTON, OR 97008			EXAMINER EGAN, SCOTT T	
			ART UNIT	PAPER NUMBER
			2621	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/26/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/663,439

Applicant(s)

HAIGH ET AL.

Examiner

Scott Egan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/15/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either an application data sheet or supplemental oath or declaration.

Specification

2. The disclosure is objected to because of the following informalities: paragraph [04] line 2 states "the formation an image" it should be change to the formation of an image. Paragraph [04] line 4-5 state "image quality in c captured images" it should be changed to image quality in captured images. Paragraph [66] says that Figs 15A-C correspond to A-A, B-B and C-C respectively, however 15A corresponds to A-A, 15B corresponds to C-C and 15C corresponds to B-B.

Appropriate correction is required.

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3. The abstract of the disclosure is objected to because the first line states Alighting and should read A lighting. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. Claims 1, 8, and 18 are objected to because of the following informalities: Claim 1 is missing a period. Claim 8 reads "Te lighting device" and should read The lighting device. Claim 18 reads "...diffuser operably coupled to on the strobe" however it should read diffuser operably coupled to the strobe. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1-6, 11, 12, 14-16, 19, 20, and 22-31** are rejected under 35 U.S.C. 102(b) as being anticipated by **Shank (US 3,737,226)**.

Consider **claim 1**, Shank explicitly teaches "a lighting device that illuminates an object from a light source (light diffusion assembly, Fig 1, light source 20 and arrows shown in Fig 1), comprising:

a housing (housing 12 and reflection member 30, Fig 1) having at least one inner surface portion that is diffusely reflective (reflection members 26 and 30, Fig 1, column 2 lines 5-7 and 20-24);

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an aperture disposed in the housing (transmitting opening 16, Fig 1), the aperture aligned with the light source (Fig 1, and column 1 lines 62-66);

a diffuser disposed between the light source and the object (reflection member 34, Fig 1 shows the two surfaces diffusing the light in more than one direction according to the arrows); and

a reflector (reflection members 26 and 30, Fig 1) disposed adjacent the aperture between the light source and the diffuser (as seen in Fig1 the light from the source is first reflected off the reflector, which is considered between the light source and diffuser)."

Consider **claim 2**, Shank explicitly teaches "the lighting device of claim 1 wherein the light source has illumination (column 1 lines 62-66), wherein:

the reflector is constructed and arranged to intercept the illumination from the light source (Fig 1 and column 2 lines 5-16);

the diffusively reflective inner surface portion of the housing is constructed and arranged to reflect the illumination intercepted by the reflector (Fig 1 and column 2 lines 20-28); and

the diffuser is constructed and arranged to receive the illumination reflected by the diffusively reflective inner surface of the housing (Fig1 and column 2 lines 35-39)."

Consider **claim 3**, Shank explicitly teaches "the lighting device of claim 1 wherein the light source has illumination (column 1 lines 62-66) and wherein the reflector and diffusely reflective inner surface portion are constructed and arranged to reflect substantially all the reflected first portion of the illumination onto the object being

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illuminated as indirect side lighting (column 2 lines 35-41 and column 2 lines 12-16), with respect to an observation axis of an image capture device capturing an image of the object (Fig 1 shows the camera facing the object and the arrows representing the light can be seen as side light which do not illuminate the object on the same axis that the picture is taken)."

Consider **claim 4**, Shank explicitly teaches "the lighting device of claim 3, wherein the lighting device is constructed and arranged to substantially reduce a visible shadow of the object on a backdrop in an image captured by the image capture device (column 2 lines 12-16 and lines 57-61);

the shadow being formed by the object intercepting light from the light source (column 2 lines 12-16 explain how the diffusion of the light stops the image from being lit directly, thus diminishing shadows, this explanation demonstrates that shadows would have been formed by the object intercepted light directly from the light source); and

the backdrop (column 3 lines 4-7) being positioned such that the object (object would be on subject support 24) is disposed between the backdrop and the light source (the arrows in Fig 1 representing the light source demonstrate that the object is between the light source and the background)."

Consider **claim 5**, Shank explicitly teaches "the lighting device of claim 4 wherein the shadow is substantially located behind the object (as seen in Fig 1 the object is illuminated by diffused side light thus avoiding "the light of source 20 from directly striking the subject in a manner that causes shadows" therefore the shadows would be

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behind the object, column 2 lines 12-16) with respect to the image capture device (camera 22 and Fig 1)."

Consider **claim 6**, Shank explicitly teaches "the lighting device of claim 1 wherein the reflector comprises a mirror aligned with respect to the light source (reflective member 26) to reflect a portion of the light towards the (see arrows in Fig 1) diffusely reflective inner surface (reflective member 34 Fig 1) and onto the object (subject support 24 Fig 1)."

Consider **claim 11**, Shank explicitly teaches "the lighting device of claim 1 wherein the light source has an exit aperture plane and wherein the reflector comprises at least two mirrors disposed orthogonal to each other (reflective member 26, as seen in Fig 2 each side of the reflective member is orthogonal to its adjacent side), each mirror disposed at an angle of approximately 45 degrees with respect to the exit aperture plane of the light source (Fig 1 and Fig 2 show the reflective member 26 with four sides which are clearly show as being approximately 45 degrees with respect to the axis of the light source)."

Consider **claim 12**, Shank explicitly teaches "The lighting device of claim 11 wherein the at least two mirrors (reflective member 26 is made up of four sides of reflective material) intercept at least fifty percent of the illumination from the light source passing through the aperture (as seen in Fig 1 all of the light from the light source is intercepted by the reflective member 26)."

Consider **claim 14**, Shank explicitly teaches "the lighting device of claim 1 wherein the object being illuminated has a width and wherein the diffuser has a width

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greater than the width of the object (Fig 2 shows that the width of the diffuser or reflection member 34 is wider than the subject support glass 24 therefore the diffuser would be wider than the object)."

Consider **claim 15**, Shank explicitly teaches "the lighting device of claim 1 wherein the housing is disposed between the light source and the object (as seen in Figs 1 and 2, the housing 12 and reflective member 30 are between the light source 20 and the subject support glass 24)."

Consider **claim 16**, Shank explicitly teaches "a lighting device for illuminating an object (light diffusion assembly, Fig 1, light source 20 and arrows shown in Fig 1) comprising:

- a housing (housing 12 and reflective members 30, Fig 1) having an inner surface, at least a portion of the inner surface being diffusely reflective (reflection members 26 and 30, Fig 1, column 2 lines 5-7 and 20-24);

- a light source (light source 20) disposed in the housing (Fig 1);

- a diffuser positioned between the light source and the object (reflection member 34, Fig 1 shows the two surfaces diffusing the light in more than one direction according to the arrows); and

- reflector (reflection members 26 and 30, Fig 1) disposed adjacent the aperture between the light source and the diffuser (as seen in Fig1 the light from the source is first reflected off the reflector, which is considered between the light source and diffuser)."

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Consider **claim 19**, Shank explicitly teaches “a method of illuminating an object with a light source (column 1 lines 21-26) and capturing an image of the object with an image capture device (camera 22), the method comprising:

providing a diffuser that diffuses light directed directly toward the object (reflection member 34, Fig 1 shows the two surfaces diffusing the light in more than one direction according to the arrows); and

reflecting a portion of the light from the light source for illuminating the object (see the arrows in Fig 1) such that substantially all the shadows within the field of view of the image capture device are located behind the object (column 2 lines 12-16 and lines 57-61).

Consider **claim 20**, Shank explicitly teaches “The method of claim 19 further comprising:

providing a backdrop behind the object (column 3 lines 4-10); and

wherein reflecting a portion of the light comprises providing a pair of mirrors (reflection member 26) for reflecting a portion of the illumination from the light source (light source 20) off a diffusely reflective surface (reflection member 30) onto the object (Follow the path of arrows in Fig 1 from the light source 20 to the subject support 24).”

Consider **claim 22**, Shank explicitly teaches “a lighting device for illuminating an object (light diffusion assembly, Fig 1) from a light source (light source 20) so that an image capture device (camera 22) can capture an image of the object, comprising:

a light source (light source 20, Fig1); and

means for illuminating the object such that substantially all shadows of the object within the field of view of the image capture device are located behind the object (column 2 lines 12-16, lines 35-39 and lines 57-61)."

Consider **claim 23**, Shank explicitly teaches "a lighting device for illuminating an object (light diffusion assembly, Fig 1) from a light source (light source 20) so that an image capture device (camera 22) can capture an image of the object, comprising:

a light source (light source 20, Fig1); and

means for converting the light from the light source into indirect side lighting directed onto the object (see Fig 1, the arrows show the path of the diffused light which hits the subject support 24 as side light), whereby at least a portion of the visible shadows of the object are reduced (column 2 lines 12-16, lines 35-39 and lines 57-61)."

Consider **claim 24**, Shank explicitly teaches "the lighting device of claim 23, wherein the object to be illuminated is disposed adjacent to a backdrop (in Fig 1 the object would be placed on subject support 24 and the background is the adjacent interior surfaces 42, column 3 lines 4-10) and wherein the means for converting reduces at least a portion of the shadows of the object that would appear on the backdrop (column 2 lines 12-16, lines 35-39 and lines 57-61) in an image captured by the image capture device (camera 22)."

Consider **claim 25**, Shank explicitly teaches "the lighting device of claim 1 wherein the housing (housing 12 and reflection member 30) and the diffuser (reflection member 34) are integrally formed (all three parts mentioned are formed together to

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make up the assembly, description of assembly can be see in column 1 lines 52-67 through column 2 lines 1-39)."

Consider **claim 26**, Shank explicitly teaches "the lighting device of claim 16 wherein the housing (housing 12 and reflective members 30, Fig 1) and the diffuser (reflection member 34, Fig 1) are integrally formed (all three parts mentioned are formed together to make up the assembly, description of assembly can be see in column 1 lines 52-67 through column 2 lines 1-39)."

Consider **claim 27**, Shank explicitly teaches "a system that captures an image of an object (light diffusion assembly, Fig 1), comprising:

- a lighting device (light diffusion assembly, Fig 1) that illuminates the object from a light source (light source 20), the lighting device comprising:

- a housing (housing 12 and reflection member 30, Fig 1) having at least one inner surface portion that is diffusely reflective (reflection members 26 and 30, Fig 1, column 2 lines 5-7 and 20-24);

- an aperture disposed in the housing (transmitting opening 16, Fig 1), the aperture aligned with the light source (Fig 1, and column 1 lines 62-66);

- a diffuser disposed between the light source and the object (reflection member 34, Fig 1 shows the two surfaces diffusing the light in more than one direction according to the arrows); and

- a reflector (reflection members 26 and 30, Fig 1) disposed adjacent the aperture between the light source and the diffuser (as seen in Fig1 the light from the source is

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first reflected off the reflector, which is considered between the light source and diffuser); and

an image capture device (camera 22) constructed and arranged to acquire an image of an object that has been illuminated by the lighting device (column 1 lines 21-26)."

Consider **claim 28**, Shank explicitly teaches "the system of claim 27 wherein the lighting device is constructed and arranged to provide indirect side lighting to the object (see Fig 1, the arrows show the path of the diffused light which hits the subject support 24 as side light) to reduce visible shadows of the object in images captured by the image capture device (column 2 lines 12-16, lines 35-39 and lines 57-61)."

Consider **claim 29**, Shank explicitly teaches "the system of claim 27 wherein the lighting device is constructed and arranged to have a substantially compact size (Fig 1 clearly shows the object as being a compact size)."

Consider **claim 30**, Shank explicitly teaches "the lighting device of claim 4 wherein the shadow is substantially located below the object (as seen in Fig 1 the object is illuminated by diffused side light thus avoiding "the light of source 20 from directly striking the subject in a manner that causes shadows" therefore the shadows would be underneath or below the subject support 24, column 2 lines 12-16) with respect to the image capture device (camera 22 and Fig 1)."

Consider **claim 31**, Shank explicitly teaches "A method of capturing an image of an object, comprising:

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directing light from a light source directly towards the object (as seen in Fig 1 the arrows of the light source begin in a direction that is directly at the subject support 24);

diffusing the light directed directly toward the object (column 2 lines 35-41);

reflecting a portion of the light from the light source for illuminating the object (see the light source arrows in Fig 1) such that substantially all the shadows within the field of view of the image capture device are located behind the object (as seen in Fig 1 the object is illuminated by diffused side light thus avoiding "the light of source 20 from directly striking the subject in a manner that causes shadows" therefore the shadows would be behind the object, column 2 lines 12-16); and

capturing an image of the object having substantially reduced shadows (column 2 lines 12-16 and lines 57-61), using an image capture device (camera 22, Fig 1)."

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 1, 7, 9, 10, and 13** are rejected under 35 U.S.C. 102(e) as being anticipates by **Terada (US 6,381,415)**.

Consider **claim 1**, Terada explicitly teaches "a lighting device that illuminates an object from a light source (flash apparatus Fig 10), comprising:

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a housing (reflector 11 and 111 Fig 2A-2B and Fig 4) having at least one inner surface portion that is diffusely reflective (all surfaces of the reflector reflect light);

an aperture disposed in the housing (Fig 2A shows the housing with a cut out hole that the flash lamp 10 is placed through, Fig 4 also shows the same), the aperture aligned with the light source;

a diffuser disposed between the light source and the object (diffuser 112 Fig 4);
and

a reflector (reflector 111 Fig 4) disposed adjacent the aperture between the light source and the diffuser (it is shown in Fig 4 that the reflector is between the light source and the diffuser) (see also column 5 lines 26-35)."

Consider **claim 7**, Terada explicitly teaches "the lighting device of claim 1 wherein the diffuser comprises a substantially translucent panel capable of diffusing light passing through the panel (column 5 lines 65-67 through column 6 lines 1-4)."

Consider **claim 9**, Terada explicitly teaches "the lighting device of claim 1 wherein the light source emits a plurality of light rays (column 5 lines 24-27) and wherein the diffuser is positioned to intercept at least a portion of the light rays (Fig 4, and 5A-5C) from the light source within a predetermined steradian angle directed toward the object (column 6 lines 5-22)."

Consider **claim 10**, Terada explicitly teaches "the lighting device of claim 9 wherein the diffuser is positioned to intercept substantially all the light rays from the light source (Fig 4, and 5A-5C show a majority of the light rays from the source being

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diffused) within a predetermined steradian angle directed towards the object (column 6 lines 5-22)."

Consider **claim 13**, Terada explicitly teaches "the lighting device of claim 1 wherein the housing includes a substantially concave portion (column 5 lines 30-33 and Figs 2A and 2B show the bell shaped reflector and its concave properties)."

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. **Claims 17, 18, and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Shank (US 3,737,226)** in view of **Chang et al. (US 4915237)**.

Consider **claim 17**, Shank explicitly teaches the lighting device of claim 16.

However, Shank does not explicitly teach that the light source comprises a strobe.

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In the same field of endeavor, Chang et al. teach a container inspection system which takes images of containers, using cameras 42, that are illuminated by a light source, flash from lamps 92, that is diffused by translucent panel 44. Chang et al. further teach that the light source is made up of strobe lamps 92.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the use of strobe lamps found in Chang et al. as the light source found in the light device described in Shank in order to save power and provide a safer bulb that will not generate as much heat as a constant light source.

Consider **claim 18**, Chang et al. further teach the use of a diffuser coupled to the strobe light (light emitted from strobe lamp 92 is diffused through translucent panel 44 column 5, lines 35-36).

Consider **claim 21**, Shank explicitly teaches the method of claim 19.

However, Shank does not explicitly teach that the light source is a strobe.

In the same field of endeavor, Chang et al. teach a container inspection system which takes images of containers, using cameras 42, that are illuminated by a light source, flash from lamps 92, that is diffused by translucent panel 44. Chang et al. further teach that the light source is strobe lamps 92.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the use of strobe lamps found in Chang et al. as the light source found in the light device described in Shank in order to save power and provide a safer bulb that will not generate as much heat as a constant light source.

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Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terada (US 6,381,415).

Consider claim 8, Terada explicitly teaches the lighting device of claim 7 with a translucent panel for diffusing light (column 5 lines 65-67 through column 6 lines 1-4). However, Terada does not explicitly teach that the diffuser is a synthetic plastic material.

However, Official Notice (MPEP § 2144.03) is taken that using a synthetic plastic material for a diffuser is well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the diffuser found in Terada out of a synthetic plastic in order to provide an inexpensive, light weight, and easy to manufacture diffuser.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Throop et al. (US 4,741,042) teach an image processing system for detecting bruises on fruits that includes a camera that takes a image of the fruit with the help tungsten bulbs whose light is diffused using a plastic diffuser.

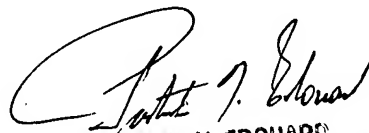
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Egan whose telephone number is (571) 270-1452. The examiner can normally be reached on Monday-Friday 8:00 a.m. - 5:00 p.m., EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 270-1455. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SE



PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER